PROGRAM REVIEW
SOUTHWEST FISHERIES SCIENCE CENTER
HONOLULU LABORATORY

Honolulu Laboratory
Southwest Fisheries Science Center
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
2570 Dole Street
Honolulu, Hawaii 96822-2396

June 23-24, 1994

Library
NOAA, National Marine Fisheries Service
SWFC Honolulu Laboratory F/SWC2
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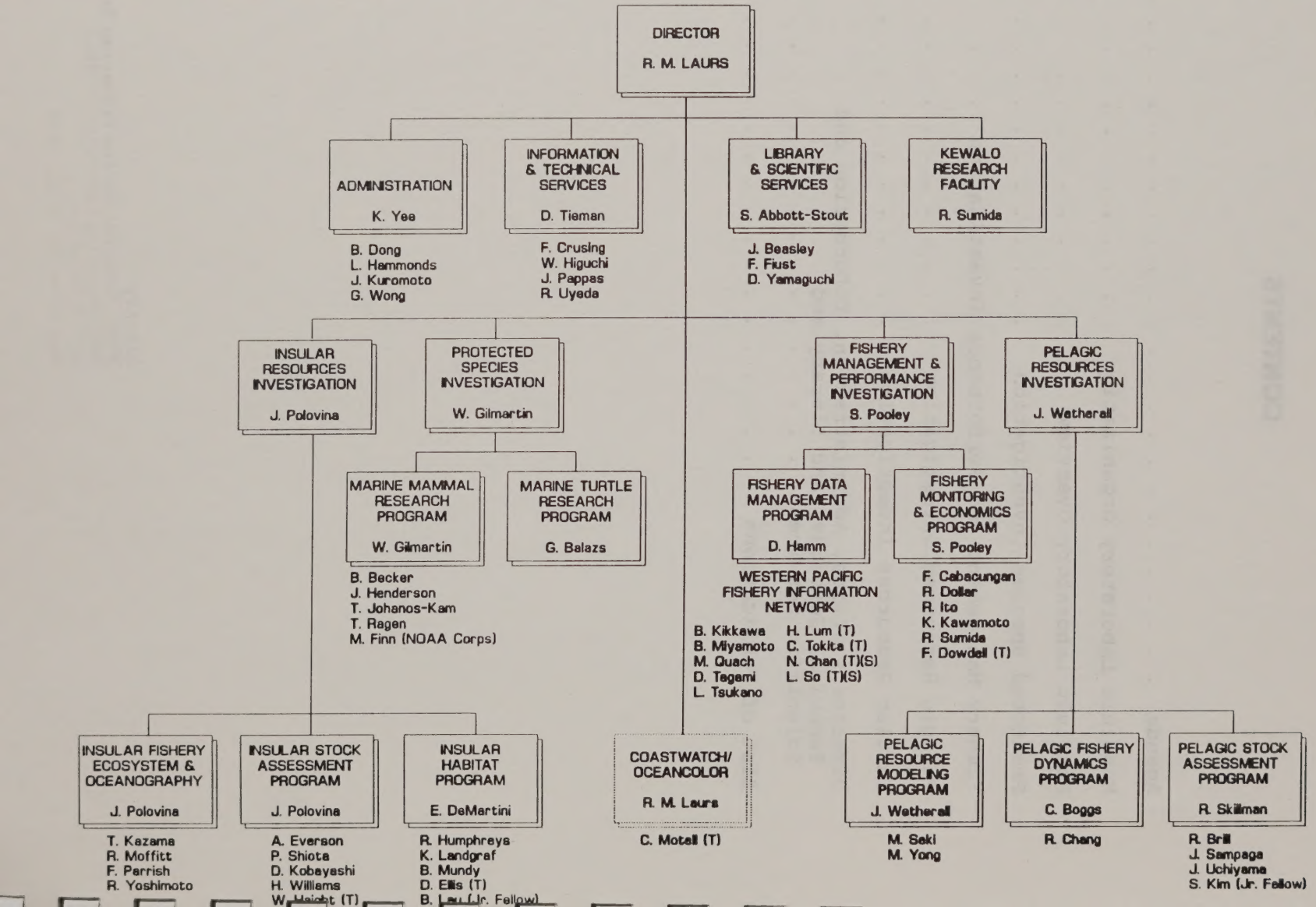
HONOLULU LABORATORY
JUNE 1994



PROGRAM REVIEW
SOUTHWEST FISHERIES SCIENCE CENTER
HONOLULU LABORATORY

AGENDA

June 22		
1830-2130	Potluck Social, Honolulu Aquarium 2777 Kalakaua Avenue	
June 23		
0830	Welcome, Introductions	Laurs
0845-1215	Laboratory Overview	Laurs
	Protected Species Investigation	
	Monk Seals	Ragen
	Marine Turtles	Balazs
	Break	
	Fishery Management & Performance Investigation	Pooley
1215-1330	Lunch	
1330-1730	Pelagic Resources Investigation	Wetherall
	Break	
	Insular Resources Investigation	Polovina
	Director's Office, Administration, Information & Technical Services, and Library and Scientific Services	Laurs
June 24		
0800 - 1130	Discussion	Tillman and Others

NMFS Southwest Fisheries Science Center
Honolulu Laboratory

1. LABORATORY OVERVIEW

- Goals:

Conduct fisheries and protected species research and related activities and operations that support NMFS goals to ***Build Sustainable Fisheries,*** including:

Assessing status of Hawaii and western Pacific pelagic and Northwestern Hawaiian Island insular fishery resources,
Advancing *fishery predictions*,
Managing for *economic growth* and promoting a healthy fishing industry, and
Reducing bycatch of Hawaii longline fishery;

and to ***Recover Protected Species***, including:

Reducing impact of human activity on endangered Hawaiian monk seal and endangered and threatened marine turtles species,
Assessing status of Hawaiian monk seal and marine turtle species, and
Implementing conservation/recovery plans for Hawaiian monk seal and marine turtles.

Provide scientific information and advice in support of Federal mandates specified by

Fisheries Conservation and Management Act,
Marine Mammal Protection Act, and
Endangered Species Act.

- Objectives:

Provide scientific information to WPFMC, NMFS, and others for five Fishery Management Plans, including pelagic fishery resources, NWHI lobster, NWHI bottomfish, seamount groundfish, and precious corals (very limitedly for latter).

Conduct research and provide scientific advice directed toward the biological recovery of the endangered Hawaiian monk seal and endangered and threatened marine turtles.

- Staff and Budget for FY 1994

	Amount	Staff Yr
NMFS Base	$2,852.4k	51.1
Reprogrammed PPA	$ 323.9k	4.2
PPA (Driftnet $138.1k, Prot. spp. $398.1k)	$ 536.1k	3.0
JIMAR (UH PFRP)	na	7.2*
(Fishery Oceanography)	na	8.8
NOAA (CWatch $67.0k, Debris $25.0k Ocean Color $165.7k)	$ 257.7k	1.2
WPACFIN	$ 151.9k	3.5
NOAA Corp	na	1.5
Junior Fellow	na	2.0
TOTAL	$4,122.3k	82.5

*currently 12 positions

- Number NOAA Staff by Categories

FTP	57.0
FTT	4.0
Temp	2.0
NOAA Corp	1.5
NOAA Jr. Fellow	2.0
TOTAL	66.5

2. SIGNIFICANT ACCOMPLISHMENTS FOR FY 1994

- Quota for 1994 fishery and stock assessment prepared for NWHI lobster and provided to WPFMC.
- Scientific information for annual NWHI bottomfish and seamount groundfish modules prepared and provided to WPFMC.
- Scientific information and expertise related to management of Pacific pelagic fishery resources provided to the WPRFMC and NMFS F/1, SWR, and SWC.
- Notable success achieved in restoration of monk seals at Kure Atoll and important advances attained in understanding Hawaiian monk seal population dynamics and natural history.
- Important advancements made on issues concerning Hawaii pelagic longline fishery interactions with marine turtles, and on marine turtle biology, ecology, and population assessment.

- Special support provided to SWR and F1 concerning NMFS Biological Opinion for Hawaii longline fishery interactions with marine turtles, including extensive data summaries and plots and review of documents.

- JIMAR/PFRP funded research initiated, including two projects pertaining to Hawaii pelagic fishery dynamics and one concerning detailed socioeconomic analyses; funding approved for tuna habitat research project to be conducted cooperatively by the HL and UH.

- Capabilities for economic and social science research markedly expanded with the initiation of JIMAR/PFRP economic research project.

- Significant contributions made to understanding of pelagic ecology of the North Pacific Transition Zone by the JIMAR/Driftnet project.

- UNIX-based graphics software completed to overlay and display multiple complex data fields, and Motif interface developed for transport and application of NPTZ database in UNIX Windows environment.

- IT-95 computer hardware, software, and communications installed and tested.

- 20% of HL PCs replaced or upgraded, full Internet and related computer communications capabilities made available to HL staff, and significant progress made in upgrading and expanding HL LAN operating system required to shift to Windows environment and other modern software.

- CoastWatch satellite data system improved, automated, and made operational for easy electronic access of ocean data products by Laboratory investigators.

- Facility improvements completed or underway, including conversion of two antiquated laboratories to office space, remodeling of area in Annex 2 for new laboratory space, reconversion of former seminar room back to seminar room, conversion of two restrooms in Annex 1 for handicap access, and renovation of Director's office complex.

- 90 manuscripts submitted for publication, in press, or published. The number of publications according to topic were:

29 Fishery biology/ecology,
32 Fisheries and fishery interactions
5 Physical and biological oceanography
9 Hawaiian monk seals
15 Marine turtles

- 10 Administrative Reports completed, dealing with the following topics:

3 Protected species
6 Fisheries Interactions
1 Fishery biology and ecology

3. EMERGING ISSUES

- Growing WPRFMC and industry emphasis on pelagic fisheries issues, especially status of swordfish resource.
- Increasing demand for information and advice on pelagic resource stock status, fishery interactions, and fishery impacts.
- Unrelenting decline of Hawaiian monk seals.
- Potential escalation of public awareness concerning marine turtle issues.
- Critical staff shortages for experts in population assessment and ORACLE and UNIX computer technology, and for technical support in protected species research.
- Application of large-scale ocean models, comprehensive ocean databases, and satellite technology to fisheries problems.

4. PROPOSED ACTIVITIES/RESEARCH FOR FY 1995

- Formulate strategic and operational plans for comprehensive, integrated pelagic research at the HL with emphasis on Hawaii longline fishery for swordfish; research also to address local tuna fishery interactions, interactions with protected species, and bycatch.
- Coordinate HL pelagic research with related research activities of UH/PFRP, NMFS/SWR, SWC/PRFD, WPRFMC and others to ensure that NMFS and WPRFMC needs for met for scientific information required for management of pelagic fisheries and protected species impacted by pelagic fisheries.

- Convert existing databases to ORACLE databases and develop interface for IT-95 system.

- Research concerning the application of environmental information to understand pelagic and protected species habitat requirements and relationships between large-scale variability of environmental conditions and variability of fishery and protected species populations.

- Expand opportunities for staff development, teamwork and coordination, and communication.

5. PROBLEMS OR IMPEDIMENTS TO MEETING GOALS

- Present organization of HL research program requires revision in order to effectively meet needs for scientific information and advice required by NMFS and WPRFMC for shifting fishery issues.

- Reprogramming of PPA funding away from protected species research.

- Unclear relationship and role of HL with SWR regarding longline observer data analyses and scientific advice concerning marine turtles.

- Lack of critical staff and funding for pelagic fishery and marine turtle population assessment.

- Fishery and related database management requirements for expertise in ORACLE and UNIX computer technology.

- High ratio of labor to nonlabor funding.

- Antiquated PC technology, 80% of PCs require replacement or upgrades to operate Windows, graphical, and other modern software.

- Lack of involvement and support of industry in fishery research programs.

6. INTEGRATION/RELATIONSHIP WITH OTHER RESEARCH PROGRAMS

- Extensive interactions with NMFS organizations, NOAA/NWS, NOAA/NOS, NOAA/NESDIS, WPRFMC, University of Hawaii and other universities, State of Hawaii organizations, and Pacific Island agencies.

PROTECTED SPECIES INVESTIGATION

1. INVESTIGATION OVERVIEW

- Goals:

  Conduct research and rehabilitation operations and provide scientific information and advice required for the biological recovery and management of the endangered Hawaiian monk seal.

  Conduct research and provide scientific knowledge and advice essential for the biological recovery and management of threatened and endangered marine turtles in the Pacific.

- Objectives:

  Monitor and determine the population status of the endangered Hawaiian monk seal and threatened and endangered species of marine turtles.

  Perform research to refine population assessment methods for the Hawaiian monk seal and marine turtles.

  Investigate the ecology, biology, and life history of the Hawaiian monk seal and marine turtles.

  Investigate the scope, magnitude, and cause of fibropapilloma disease in Hawaiian green turtles.

  Investigate interactions of longline fisheries with marine turtles in the North Pacific, with emphasis on estimating mortality and measures to mitigate and prevent incidental take.

  Identify impediments to the recovery of the Hawaiian monk seal and carry out rehabilitation operations to assist in the biological recovery of the species.

  Provide scientific information and advice to NMFS for management of the Hawaiian monk seal and marine turtles.

- Staff and Budget for FY 1994

	Amount	Staff Yr
Monk Seal Task		
NMFS Base	$ 215.2k	5.25
PPA ($494k authorized)	$ 253.2k	
NOAA Corp	-	1
MERP	25.0k	-
JIMAR	-	3*
Volunteer	-	4
Marine Turtles Task		
NMFS Base	$ 49.2k	1
PPA ($228k authorized)	$ 144.9k	
JIMAR	$ -	3*
	$ 687.5k	17.25

*Unable to extend appointment beyond 2 years; hired on JIMAR contract.

- Number of NOAA Staff by Categories

FTP	6.0
Temp	0.25
NOAA Corp	1.0

- Overall Labor: NOAA 40%, JIMAR 35%, Volunteer 25%
  (volunteers 45% total monk seal staff and 70% field staff)

NMFS Staff

W. Gilmartin GS-14	Invest. Leader/Marine mammalogist
G. Balazs GS-12	Marine turtle biologist/task leader
T. Ragen GS-12	Marine mammal assessment
J. Henderson GS-11	Marine mammal data analysis
T. Johanos GS-9	Marine mammal data analysis
B. Becker GS-7	Marine mammal data analysis
H. Johnston GS-4*	Marine mammal data field operations

*.25 temp

Affiliated JIMAR Staff

M. Craig	Marine mammal field operations
A. Sloan	Marine mammal rehabilitation
H. Swensen	Marine mammal data analysis
S. Koga	Marine turtle research associate
R. Miya	Marine turtle research associate
Vacant	Marine turtle research associate

Affiliated Volunteer Staff

L. Keith	Marine mammal field operations
C. Vanderlip	Marine mammal field operations
C. Yoshinaga	Marine mammal field operations
T. Holonko	Marine mammal field operations
J. Kermode	Marine mammal field operations
S. Summers	Marine mammal field operations
S. Kirkland	Marine mammal field operations
P. Frierson	Marine mammal field operations

2. SIGNIFICANT ACCOMPLISHMENTS OF FY 1994

- Completed assessment of monk seal populations at Laysan Island and French Frigate Shoals, including studies of population size, composition, reproductive and survival rates, entanglement in marine debris, and male reproductive behavior.

- Fully assessed composition of Kure Atoll population of monk seals prior to reproductive season for estimating survival rates and for evaluating reintroduction success.

- Notable success achieved in restoration of monk seals at Kure Atoll and important advances attained in study of population dynamics and natural history.

- Progress made on correction of sex ratio imbalance of adult seals at Laysan Island by relocating selected males, which is expected to significantly reduce adult and immature mortality due to mobbing by adult males.

- Successfully rehabilitated 8 seals at Kewalo Research Facility and Sea Life Park and reintroduced those seals at Kure Atoll. Currently are rehabilitating 3 additional seals that were undersized at weaning.

- Developed software programs for entering and quality checking monk seal field data, substantially reducing the amount of time and effort after the field season, and thereby allowing more timely analysis of the data.

- Completed/published 11 manuscripts on monk seal research and management, with topics including reproductive behavior and physiology, survival of immature seals, decadal scale changes in the North Pacific and possible effects on monk seals, status of stocks, and summaries of field studies.

- Accomplished important advances on issues concerning Hawaii pelagic longline fishery interactions with marine turtles, including designing and hosting a workshop of experts to address the topic, preparing a detailed research plan to assess marine turtle hooking mortality associated with the longline fishery, and initiating research operations according to the plan.

- Completed experiments yielding first ever daily information on migration routes followed by green turtles from French Frigate Shoals and from Rose Atoll, American Samoa using satellite telemetry.

- Monitored and estimated the size of 1993 nesting population of green turtles at French Frigate Shoals.

- Re-examined 20-year historical data record for trends in nesting success of green turtles at French Frigate Shoals using quantitative models developed in collaboration with Pelagic Resources Investigation researchers.

- Conducted periodic tagging, assessment, and health screening for fibropapillomatosis in immature green turtles at six major foraging pasture study sites in the main Hawaiian Islands.

- Completed investigation with contract pathologist of cellular and hormonal responses of green turtles with and without fibropapillomatosis to stress and parasite eggs.

- Published, in press, or Center approval of 14 papers on marine turtles, with topics including fibropapillomatosis, foraging pasture ecology, reproductive migrations, hooking mortality, behavioral ecology, population trends, and monitoring techniques.

3. **EMERGING ISSUES**

- Unrelenting decline of Hawaiian monk seals.

- Disposition of Midway Atoll after being vacated by the U.S. Navy.

- Problems associated with relocation of adult male monk seals to main Hawaiian Islands.

- Inadequate monitoring of main reproductive populations.

- Compliance with newly reauthorized Marine Mammal Protection Act.

- Need for information on the status of critically endangered hawksbill turtles and their nesting habitats on Molokai, Maui and Hawaii.

- Potential increased incidental take of turtles by the longline fishing fleets operating in the North Pacific.

- Need for robust capabilities to determine stock identification, mortality rates, and population assessment of marine turtles to evaluate fishing impacts in pelagic habitats.

- ATOC project and potential impact on green turtle migrations in Hawaii.

4. PROPOSED ACTIVITIES/RESEARCH FOR FY 1995

- Assessment of five main reproductive populations of monk seals, with site-specific emphasis:

  Laysan--determine effects of 1994 correction of adult sex ratio, and subsequent changes in reproductive behavior/mobbing;

  Lisianski--identification of adult males and assessment of their behavior (i.e., collect data necessary for analysis of mobbing at this island);

  French Frigate Shoals-- continued assessment of population decline, with emphasis on condition of immature seals;

  Kure--evaluate success of reintroduction efforts and verify that recovery continues as expected;

  Pearl and Hermes Reef--confirm that population growth continues at this site (this population has not been assessed thoroughly since 1991).

- Continue rehabilitation of undersized weaned pups from French Frigate Shoals (at Kewalo Research Facility and Sea Life Park); release seals brought into captivity in FY 1994.

- Develop computer models for each island population and conduct population viability analyses.

- Complete analysis of age-specific survival based on seals tagged as weaned pups.

- Complete incorporation of monk seal database into ORACLE format.

- Begin investigation of monk seal foraging patterns using satellite telemetry, CoastWatch satellite data, and other techniques of remote monitoring. Initial study to focus on measurement of satellite error in locating instrumented seals.

- Continue to investigate fibropapilloma disease in green turtles to determine cause, possible cure or containment management measures, and long-term impacts, with emphasis on interrelationships of suspected viruses and trematode parasite infections. Examine and identify (with J. Polovina) habitat characteristics at near shore foraging pastures where turtles are affected with and free of fibropapillomatosis.

- Study pelagic ecology of turtle populations in the central north Pacific where interactions occur with longline fisheries. Analyze observer data, necropsy salvaged turtles, use mtDNA analysis for stock identification, and evaluate (with Office of Protected Resources) satellite telemetry to for use in estimating post-release hooking mortality. Develop analytical methods and experimental designs (with J. Wetherall) for estimating early pelagic (post-hatchling) survival rates. Study oceanographic features with CoastWatch satellite and other data (with J. Polovina) to identify habitats of pelagic turtles in relation to longline fishing areas.

- Develop and implement work plan with U.S. Fish and Wildlife Service to address research and management needs of nesting and foraging hawksbill turtles in the main Hawaiian Islands. Deploy satellite transmitters on two nesting females to determine if international migrations are occurring to resident foraging pastures beyond the Hawaiian Islands.

- Estimate populations of immature green turtles using inshore survey and tag-recapture data (with J. Wetherall) based on ongoing long-term repetitive field tagging and sampling conducted at six major foraging pastures in the main Hawaiian Islands. Use mtDNA analysis (with Charleston Laboratory) to determine if these immature turtles are genetically consistent with the adult nesting population at French Frigate Shoals.

- Complete historical French Frigate Shoals nesting database and update (with J. Wetherall) estimates of remigration intervals, adult survival rates, and other key parameters.

- Monitor, census, and tag the nesting population of green turtles during the 1995 season at French Frigate Shoals and deploy two satellite transmitters on adult males to compare migratory routes with pathways thus far known for adult females.

- Conduct skeletochronological analysis of comprehensive collection of humeri (salvaged during necropsies of stranded turtles) to estimate age structure of green turtles in Hawaii in order to compare with age estimates generated from ongoing long-term tag and recapture field studies. Conduct preliminary length-frequency analyses using tag-recapture data base to determine value of this technique for sea turtles.

- Continue to participate and contribute expertise to the NMFS/FWS Pacific Sea Turtle Recovery Team and the Regional Marine Turtle Conservation Program of the South Pacific Regional Environmental Program (SPREP).

5. PROBLEMS OR IMPEDIMENTS TO MEETING GOALS

- Dependence on volunteers for accomplishing monk seal activities is a serious problem which must be rectified; e.g., 70% of the labor for field studies is volunteer.

- Critical understaffing of Marine Turtle Research Program.

- Probable need to discontinue using JIMAR contract for temporary protected species investigation employees.

- Improvements required at Kewalo facility for monk seal rehabilitation and green turtle fibropalliloma research.

- Insufficient staff with required statistical, analytical, and assessment skills for monk seal and marine turtle research and for providing scientific advice required for management of protected species.

- No staff with the veterinary skills which are needed for monk seal and marine turtle research and rehabilitation.

- Long-term planning severely hampered by insufficient, unpredictable, and late funding.

6. INTEGRATION/RELATIONSHIPS WITH OTHER RESEARCH PROGRAMS

- Honolulu Laboratory

  Collaboration/cooperation with Pelagic Resources staff on assessment of marine turtles.

  Collaboration/cooperation with Insular Resources Investigation on research to evaluate potential monk seal prey base in Northwestern Hawaiian Islands, definition of marine turtle habitat, potential environmental mechanisms responsible for spatial distribution of fibropapilloma, and temporary loan of staff.

  Collaboration/cooperation with Information and Technical Services staff to convert monk seal database to ORACLE format and assist with turtle data base.

- Southwest Region

  Important interaction with PAO regarding recovery of stranded monk seals and marine turtles, and with Long Beach concerning longline observer program and resulting data on marine turtles.

- NMFS Headquarters

  Considerable interaction with Protected Species Division regarding marine mammal and marine turtle issues and review of documents concerning protected species legislation, program/research planning, biological opinions, and impact assessments.

- Other NMFS Groups

  Moderate interactions with National Marine Mammal Laboratory regarding research programs and temporary exchange of staff.

- Hawaiian Monk Seal Recovery Team (HMSRT)

  Reviews research and management of Hawaiian monk seal on annual basis.

- Marine Mammal Commission

  Reviews research permit applications, conducts periodic reviews of monk seal program, and sends representatives to participate in HMSRT meetings.

- Other Federal Agencies

  Extensive cooperation with Fish and Wildlife Service, National Park Service, Coast Guard, and Navy concerning logistics in the Northwestern Hawaiian Islands for monk seal field programs and marine turtle research.

- State of Hawaii

  Obtain special use permit from State for monk seal research and management activities; State biologist serves as a member of HMSRT. Considerable cooperative research involving tagging and tumor assessment of marine turtles is conducted with biologists of the Division of Aquatic Resources, Department of Land and Natural Resources based on the islands of Kauai, Maui, Molokai and Hawaii.

- University of Hawaii and other universities

  Extensive interactions with UH concerning a broad range of topics, including collaborative/cooperative research with faculty and supervision of graduate student research on monk seals and marine turtles, collection of stranded monk seals and marine turtles, and SeaGrant and JIMAR research projects; UH Marine Option Program provides equipment, students, and other critical support services for laboratory researchers doing field studies of marine turtles on the islands of Hawaii and Maui.

  Cooperative/collaborative research of marine turtles is also accomplished with science instructors and honor students of the Hawaii Preparatory Academy. Cooperative mtDNA analysis and other research is continuing with the Archie Carr Center for Sea Turtle Research at the University of Florida. Student at University of California Santa Cruz is investigating genetics of Hawaiian monk seal populations, and a student at the University of Minnesota is developing a proposal to investigate foraging ecology of monk seals.

- Sea Life Park

  Sea Life Park is responsible for much of the current effort to rehabilitate undersized weaned pups from French Frigate Shoals, for subsequent reintroduction into the wild populations. The Park also houses 6-8 captive adult seals for research on a variety of topics from reproductive physiology to energetics. In addition, marine turtles in captivity for display purposes at the Park are frequently used for various benign research purposes, as a control for studies in the wild, e.g. testing mounting techniques for satellite transmitters.

- International groups

  Technical advice and cooperative research relating to Pacific-wide marine turtles populations take place in collaboration with the Regional Marine Turtle Conservation Program of the South Pacific Regional Environmental Program (SPREP). HL researcher is supported by SPREP to attend planning and advisory meetings held each year in Apia, Western Samoa. Cooperative research on pelagic loggerheads in North Pacific longline fishing area has recently been initiated with the Port of Nagoya Aquarium. Monk seal program leader is on the captive breeding committee for the Mediterranean monk seal; several HL Hawaiian monk seal program staff will participate in the first attempt to capture wild Mediterranean monk seals to start a captive breeding program.

- Public and private groups

  Several private commercial and non-profit entities, such as Atlantis Reef Divers Corporation and The Ocean Recreational Council of Hawaii, provide valuable cooperation in studies of marine turtles by making available vessel space and support services to laboratory researchers.

FISHERY MANAGEMENT AND PERFORMANCE INVESTIGATION

1. INVESTIGATION OVERVIEW

- Goal: Provide fishery information and economic analysis to NMFS and WPRFMC regarding Hawaii and western Pacific fisheries.

- Objectives:

  Collect, process, and manage domestic fisheries-dependent information for most fisheries based in Hawaii and for fisheries under U.S. jurisdiction in the western Pacific.

  Provide liaison with WPRFMC, including serving on planning teams and other committees, preparing annual fishery monitoring reports, and conducting ad hoc operational and economic analyses.

  Provide industry and community liaison regarding fisheries monitoring matters.

  Conduct economic and related social science research and analyses on Hawaii and western Pacific fisheries.

  Support HL research through data processing and database management and operational management of the Kewalo Research Facility.

  Operate WPACFIN, including providing training and technical assistance to western Pacific island participants and maintenance and management of fishery database.

- Staff and Budget for FY 1994

	Amount	Staff Yr
NMFS Base	$ 633.5k	13
PACFIN add-on	$ 151.9k	6
JIMAR (UH PFRP $187.6)	$ na	4
TOTAL	$ 785.4k	23

- Number NMFS Staff by Categories

FTP	13
FTT	1
Temp	4

NMFS Staff

S. Pooley GS-14	Invest. Leader/Industry Economist
D. Hamm GS-12	Prog. Leader/Data manager
R. Sumida GS-11	Prog Leader/Ind. liaison, Kewalo
B. Kikkawa GS-9	Fishery biologist
M. Quach GS-9	Computer programmer
D. Tagami GS-9	Data manager
F. Cabacungan GS-7	Computer programmer
R. Dollar GS-7	Fishery monitoring
K. Kawamoto GS-7	Fishery monitoring
H. Lum GS-7(T)	Computer programmer (term)
B. Miyamoto GS-7	Data management
R. Ito GS-6	Fishery monitoring
L. Tsukano GS-6	Data management
F. Dowdell GS-5(T)	Computer programmer
W. Machado GS-5	Fishery monitoring
C. Tokita GS-3(T)	Data management
N. Chan GS-1(T)	Data transcriber
L. So GS-1 (T)	Data transcriber

Affiliated JIMAR Staff

Rita Curtis	Economist
Marcia Hamilton	Economist
Mike Travis	Economist
Min Ling Pan	Graduate student

2. SIGNIFICANT ACCOMPLISHMENTS OF FY 1994

- Analyses and synopses prepared for WPRFMC annual report modules for NWHI lobster and bottomfish fisheries and pelagic species FMPs.

- Capabilities for economic and social science research markedly expanded with the initiation of JIMAR/PFRP economic project.

- Special summary data sets and plots from longline observer data prepared on short notice for SWR in support of NMFS Biological Opinion regarding Hawaii longline fishery interactions with marine turtles.

- Manuscripts completed dealing with the economics of license limitation, including fractional licensing and fisheries management trusts, with coauthor Prof. Ralph Townsend, University of Maine (SWFSC socioeconomic faculty fellow).

- Fisheries Statistics for Western Pacific for 1993 published by WPACFIN (9th volume).

- Stock assessment methodologies report completed on Guam fisheries through the WPACFIN WIDA project.

- WPACFIN training workshop on methods and procedures for fishery data collection and processing conducted for Northern Mariana fishery officers and technicians.

- Data management capabilities and methodologies upgraded significantly, including installation of optical storage hardware and improved software for data retrieval.

3. EMERGING ISSUES

- Growing emphasis on pelagic fisheries issues, including expansion of longline fishing fleets operating from outside Hawaii fishing on same pelagic fish stocks as Hawaii-based fleets.

- Potential regulation of Hawaii's nearshore small-scale pelagic fishing fleets.

- NMFS policy for expanding use of sociological and cultural information to support fishery management and WPRFMC attention to native fishing rights.

- Increasing need by WPRFMC for economic analyses for evaluating alternative fishery management solutions.

- Acute need for trained ORACLE experts for converting existing fishery, economic, and related databases to ORACLE databases and for developing related software interfaces.

- Initiation of data rescue proposal (ESDIM) to capture historic Laboratory hard-copy cruise and fisheries monitoring data.

4. PROPOSED ACTIVITIES/RESEARCH FOR FY 1995

- Continue meeting WPRFMC needs for annual fishery monitoring reports, preparation of economic analyses, service on committees, and furnishing short-term access to fishery monitoring data.

- Complete first year and initiate second year JIMAR/PFRP of economic research project, which includes detailed cost-earnings analysis of the Hawaii longline fleet and modeling of fleet activities and markets, and initiation of cost-earnings studies of small-boat pelagic fleets.

- Develop an upgraded capability for conducting baseline economic analysis.

- Initiate procedures for converting databases to ORACLE databases.

- Establish ongoing accessible time-series of fishery monitoring and economic information for Hawaii-based fisheries.

- Implement improvements in fishery data collection protocols, upgrade data entry and archiving methodology, and activate online menu-driven data dictionary and directory system.

- Upgrade software routines for Hawaii regulated fisheries, including longline observer data, to improve quality, timeliness, and resolve issues concerning confidentiality.

- Make improvements to WPACFIN including, additional technical assistance and training to each WPACFIN island group, and develop full online central query system to meet WPRFMC needs.

- Depending on funding availability, provide regular stock assessments and economic analysis to WPACFIN members, including Micronesia.

5. PROBLEMS OR IMPEDIMENTS TO MEETING GOALS

- Meeting increasing needs for fishery monitoring and reporting with limited staff, temporary appointments, and funding shortfalls.

- Monitoring NWHI bottomfish fishery through State of Hawaii landings reports.

- Deterioration of relationships with longline and bottomfish captains in light of longline observer program and other fishery management demands.

- Meeting legitimate data reporting needs while maintaining data confidentiality in a developing fishery.

- WPACFIN progress limited by uncertain funding and lack of progress in development of island agency skills.

6. INTEGRATION/RELATIONSHIP WITH OTHER RESEARCH PROGRAMS

- Honolulu Laboratory

  Extensive interaction with HL Pelagic Resources Investigation, Insular Resources Investigation, and Protected Species Investigation over broad spectrum of topics related to fishery data, fishery monitoring, and fishery data and related data management; and with HL Information and Technical Services regarding computer and related technology.

  Considerable interaction with the HL Director's Office on economic reviews and analyses.

- La Jolla Laboratory

  Substantial interaction concerning SWFSC socioeconomic research coordination, fishery data transfers and data base documentation, and database design and fishery monitoring protocols.

- Southwest Region

  Extensive interaction with PAO and Long Beach Office related to coordination of socioeconomic activities, data transfers and documentation, database design, fishery monitoring, Fisheries of the U.S. publication, special data summaries and plots from longline observer data, and S-K economic research projects.

  Some interaction with SWR Enforcement on access to lobster and longline logbooks.

- NMFS Headquarters

  Some interaction regarding economic overview of U.S. Fisheries publication and coordination of economic research activities.

- WPRFMC

  Extensive interaction, including serving on PMTs and SSC, preparing PMT annual reports, preparing ad-hoc data summaries and analyses as requested by the Council, and preparation of economic studies and analyses on fishery management proposals.

- State of Hawaii

  Considerable interaction regarding fishery data collection methods and documentation, fishery data compilation and sharing, and fisheries monitoring.

- University of Hawaii and other universities

  Extended interactions including Adjunct Faculty member, socioeconomic research with JIMAR Pelagic Fisheries Research Program funding, and cooperative/collaborative economic research with UH East-West Center, University of Maine, Eckerd College (Florida), University of Maryland, and University of Washington.

- Fishing Industry

  Constant interaction with fishing industry, including fishermen, captains and vessel owners, buyers and processors, and suppliers for gathering logbooks, biological samples, landings records, and related fishery data; also for information sharing and exchange with the industry.

- Island Fisheries Agencies

  Considerable interactions regarding WPACFIN operations, training, and technical support.

- Kewalo Research Facility (KRF)

  Extensive interactions are required for operational management of the KRF, including the HL Pelagic, Insular and Protected Species Investigations regarding cruise preparations and staging, gear storage, and experimental facilities; with the State Harbors division on facility lease and planning; and with Scripps Institution of Oceanography concerning experimental facilities and cooperative agreement funds.

PELAGIC RESOURCES INVESTIGATION

1. INVESTIGATION OVERVIEW

- Overall Goal: Provide NMFS and WPRFMC with information and advice on pelagic resource stock status, fishery interactions, and fishery impacts for pelagic fishery management decisions.

- Objectives:

  Assess status of swordfish stock and impact of Hawaii longline fishery.

  Determine local (Hawaii) pelagic resource stock dynamics, fishery interactions, and fishery impacts for optimum yield policy decisions.

  Assess degree of interaction of Hawaii longline fishery with turtles and other protected species and impacts on population recovery.

  Determine pelagic fishery impacts on sharks and other bycatch species.

  Conclude driftnet fishery monitoring, impact assessment and related research.

- Staff and Budget for FY 1994

	Amount	Staff Yr
NMFS Base	$ 594.8k	9.0
PPA Driftnet	$ 138.0k	3.0
JIMAR (UH/PFRP)	$ na	4.5
TOTAL	$ 732.8k	16.5

- Number NMFS Staff by Categories

FTP	9
Jr. Fellow	1

NMFS Staff

J. Wetherall GS-14	(Invest. Leader) Analysis, modeling
R. Skillman GS-13	Fishery biology, stock assessment
C. Boggs GS-12	Fishery biology/dynamics/habitat
R. Brill GS-13	Tuna biology and physiology
M. Yong GS-11	Mathematics, statistics
R. Chang GS-11	Pelagic fishery biology
M. Seki GS-11	Pelagic ecology, biological ocean.
J. Uchiyama GS-11	Age-growth/otoliths/hard parts
J. Sampaga GS-5	Otoliths/hard parts
S. Kim GS-3	Junior Fellow

Affiliated JIMAR Staff

G. DiNardo	Fishery analysis, statistics
W. Kwok	UNIX systems, computer programming
X. He	Biosystems modeling
Q. Yang	Statistics
W. Wu (0.5 FTE)	Computer programmer
J. Yu (0.5 FTE)	Computer programmer
J. Kim (0.5 FTE)	Clerical
K. Bigelow	Fishery oceanography
D. Curran	Fishery biology

2. SIGNIFICANT ACCOMPLISHMENTS IN FY 1994

NMFS Base Funding

- Completed reports on Hawaii swordfish status, swordfish age-growth progress, and swordfish size conversion formulas.
- Initiated observer collection of biological data for swordfish, sharks and other species from Hawaii longline fishery.
- Initiated study to evaluate biochemical and DNA tests for sex determination of gutted swordfish.
- Provided Amendment 7 analysis and support to WPRFMC and NMFS.
- Published manuscript concerning Hawaii fishery interactions, 2 papers on Hawaii pelagic fisheries (special issue MFR), paper on limited-range fishery interactions (FAO), and several papers on tuna and billfish habitat, movements, and related physiological capacities.
- Provided expertise and support to SWR longline observer program, NMFS F/IA U.S.-Japan Consultation, and turtle hooking mortality workshop.
- Prepared FY 1995 initiative on longline fishery-sea turtle interactions.

JIMAR - Driftnet PPA Funding

- Published 8 driftnet program papers on oceanic squid trophic ecology, squid age and growth, turtle bycatch and impacts, driftnet bycatch estimation methods, and impacts of driftnet entanglement on albacore condition parameters. Papers on Pacific pomfret age and growth and driftnet bycatch of fish and cephalopods submitted for publication.

- Will complete North Pacific Transition Zone (NPTZ) Faunal and Oceanographic Atlas and papers on albacore age and growth, neon flying squid spawning biology, and pelagic distribution and ecology and turtles in the NPTZ.

- Will complete analysis of NPTZ micronekton composition and distribution.

- Completed development of UNIX-based graphics software (*GMT PlotTool*) for mapping and overlay displays of complex data fields.

- Developed Motif graphical user interface for integrated UNIX-based fishery and oceanography information system.

JIMAR - UH Pelagic Funding

- Initiated investigations of Hawaii pelagic fishery catch and effort data and design of Hawaii yellowfin tuna tag-recapture experiments.

- Received approval for proposal submitted to JIMAR PFRP for tuna habitat research in cooperation with UH.

3. EMERGING ISSUES

- Increased concerns about pelagic fishery issues, especially status of swordfish resource.

- Proposal by WPRFMC for designation as lead Council for management of U.S. pelagic fisheries in Pacific.

- Entry of California and Alaska based longline vessels into central Pacific swordfish fishery.

- Uncertain stock status of northern bluefin tuna and catch/bycatch of bluefin in Hawaii longline fishery.

- Catch of "undersize" bigeye and yellowfin tunas in seamount handline fishery and potential regulations.

- Potential for increased public pressures concerning longline fishery interactions with protected species (mostly turtles) and bycatch issues.

- Conversion of present data base to ORACLE data base and shift to T-95.

- Increasing demands for NMFS pelagic fisheries data and shortage of resources to meet them.

4. PROPOSED ACTIVITIES/RESEARCH FOR FY 1995

NMFS Base Funding

- Formulate strategic and operational plans for comprehensive, integrated pelagics research at the HL with increased emphasis on the Hawaii longline fishery for swordfish. Research also to address local tuna fishery interactions, interactions with protected species (turtles), and bycatch.

- Host and lead workshop of principals to coordinate HL pelagics research with related research activities of UH/PFRP, NMFS/SWR, SWC/PRFD, WPRFMC and others to assure that NMFS and WPRFMC scientific information needs are met for management of pelagic fisheries and recovery of protected resources.

- Convert pelagic fishery databases to integrated ORACLE database.

- Other likely or potential research activities in FY 1995 contingent on strategic and operational planning and resources:

- Swordfish

  Prepare contributions for Ensenada swordfish symposium.

  Develop and execute swordfish stock assessment strategy.

  Develop size-, age-, and sex-structured swordfish population and harvest models.

  Develop and evaluate models of swordfish CPUE to monitor (index) stock abundance, taking account of factors affecting availability and catchability.

  Establish cooperative swordfish research program with Japan and others.

  Plan 1996 swordfish stock assessment workshop.

  Evaluate and improve swordfish biological sampling.

  Design and establish joint NMFS/industry program for swordfish research, including tagging.

Develop and implement program to delineate swordfish stock structure. (Candidate for JIMAR PFRP funding)

Continue and improve swordfish age-growth research.

Initiate swordfish reproductive biology studies.

Complete and evaluate pilot study on sex-determination of gutted swordfish.

Design and initiate swordfish oceanography field surveys.

Identify and evaluate stock abundance survey methods.

If feasible, investigate swordfish movement patterns using ultrasonic tracking and archival tag methods.

- Local Fishery Dynamics and Interactions (Tuna)

Develop size-structured models and required databases for analysis of fishery interactions.

Establish age-growth and reproduction research for tunas and marlins.

- Interactions with Protected Species

Conduct research related to sea turtle interactions with pelagic longline fisheries, including models of take rates as function of effort distribution, target species, gear configuration, fishing operations, habitat structure and other factors.

Provide scientific and technical support to SWR with respect to turtle take monitoring, impact assessment and related issues.

- Pelagic Bycatch

Estimate shark (and other) bycatch by Hawaii longline fishery, complete blue shark species synopsis and assess extent of shark "finning."

Biology and population dynamics of oceanic sharks and other longline fishery bycatch species.

- JIMAR UH/PFRP Funding

Establish historical Hawaii catch, effort, and CPUE databases and assess local fishery impacts and interactions.

Investigate effects of environment on Hawaii longline swordfish fishing success.

Develop model of local yellowfin tuna movements and design tagging experiments.

Publish manuscript on longline gear selectivity.

Initiate tuna habitat research; coordinate with related projects to ensure delivery of critical information for management of pelagic fisheries.

- JIMAR (FY 1994 Driftnet PPA Funding and ESDIM (if awarded))

  Continue development of NPTZ integrated information system for fishery and environmental data, including ORACLE pelagics database programming.

5. PROBLEMS OR IMPEDIMENTS TO MEETING GOALS

- Lack of critical staff: field and lab technicians, biologists, database experts, programmers, high-level quantitative staff.
- Lack of non-labor support for biological sampling, laboratory analysis, field surveys and cruises, data analysis and reporting, travel and international collaboration.
- Lack of funds for analysis of longline observer data.
- Lack of joint planning and coordination with SWC/PFRD, SWR, HQ, and others.
- Lack of quiet ship for tracking.
- Lack of support for small-vessel: empty NOAA Corps billet and lack of maintenance funds.

6. INTEGRATION/RELATIONSHIPS WITH OTHER RESEARCH PROGRAMS

- Honolulu Laboratory

  Provide quantitative support to turtle program for population monitoring, assessment and modeling.

  Joint data analysis and publications with Fishery Management and Performance Investigation (FMPI).

  Key user of CoastWatch/OceanColor program products.

Provide data to Insular Resource Investigations for pelagic habitat and climate-impact studies.

Key user of pelagic longline logbook and observer data maintained by FMPI. Provide advice on data management.

Key user of ITS services. Provide advice on software and hardware needs.

- Other NMFS units

Joint pelagics data management with SWC/PFRD (e.g., Oracle database design, ESDIM pelagics database proposal).

Collaboration with SWC/PRFD on driftnet impact assessment, albacore biology.

Provide expertise to SWR/LB: longline observer program design, Amendment 7 review, and biological opinion review.

Provide support to F/PR on turtle hooking mortality workshop and related topics.

Provide support on pelagic longline fishery issues to F/IA for U.S.-Japan consultation.

Coordinate on driftnet research with AKC elements.

- Non-NMFS programs

Active support of WPRFMC via Pelagics PMT, SSC, ad hoc data analysis, and routine reporting.

Collaboration with UH/PFRP on modeling of yellowfin movements, tagging experiment design, and other projects.

Collaboration with UH/Dept. Oceanography and University of Hokkaido on spawning and reproductive biology of neon flying squid.

Consult with software authors at UH and NOS on development of mapping tools (GMT PlotTool).

Consult with Naval Research Lab on oceanographic database software development.

Occasional (but minor) involvement in Western Pacific Yellowfin Research Group.

Active involvement in FAO Expert Consultation on Interactions of Pacific Tuna Fisheries.

Proposed collaborations with research staff at National Research Institute of Far Seas Fisheries (Shimizu) on blue sharks.

Potential collaboration with Taiwan Fisheries Research Institute (Keelung) on pelagic longline research.

Active collaboration on swordfish biological research and Pacific Swordfish Symposium with CICESE-Mexico.

INSULAR RESOURCES INVESTIGATION

1. INVESTIGATION OVERVIEW

- Goal: Provide scientific advice on four Insular FMP resources (lobster, bottomfish, seamount groundfish, and precious corals) to WPRFMC

- Objectives:

  Recommend annual harvest quota level for lobster fishery.

  Assess status of stocks of lobster, bottomfish, and seamount groundfish.

  Describe ecology of juvenile snapper.

  Describe physical-biological links in marine ecosystems.

  Advance knowledge in population dynamics and ecology of insular resources

  Develop new tools and approaches to study marine resources

- Staff and Budget for FY 1994

	Amount	Staff Yr
NMFS Base	$ 735.0k	14.5
TOTAL	$ 735.0k	14.5

- Number NMFS Staff by Categories

NMFS Staff	
J. Polovina GS-14	Chief/Population Dynamics
E. DeMartini GS-13	Age and growth/ecology
T. Kazama GS-11	Fishery biology
R. Moffitt GS-11	Lobster assessment
B. Mundy GS-11	Fish early life history
P. Shiota GS-11	Gear specialist
A. Everson GS-9	Fish ecology
W. Haight GS-9	Fish/lobster ecology
R. Humphreys GS-9	Fish ecology
D. Kobayashi GS-9	Population dynamics
F. Parrish GS-9	Fish ecology
K. Landgraf GS-6	Fish ecology
D. Ellis GS-5	Biological technician
R. Yoshimoto GS-4	Biological technician
H. Williams GS-5(0.5 FTE)	Biological technician

Affiliated JIMAR Staff
M. Zhou (0.5 FTE)

2. SIGNIFICANT ACCOMPLISHMENTS OF FY 1994

- Annual lobster preliminary and final harvest quota, research/assessment cruise, and status of stocks.
- Annual bottomfish and seamount groundfish modules for WPRFMC.
- Publication of manuscript "Physical and biological consequences of a climate event in the central North Pacific."
- Completion of manuscript "Decadal scale variation in biological productivity due to changes in mixed layer depth in the Central and North Pacific."
- Analysis of fishery and environment data to describe dynamic geography of skipjack in Western Equatorial Pacific
- Published manuscript on development and application of baited video camera for juvenile opakapaka assessment.
- Completed study and manuscript on decadal change in reef fish abundance at Midway Atoll.
- Developed and evaluated field techniques to conduct quantitative juvenile snapper diet study.
- Published six papers on lobster population biology and dynamics, and NWHI lobster fishery.

3. EMERGING ISSUES

- Changes in NWHI lobster management.
- NWHI ecosystem monitoring.
- Spatial scale of bottomfish management unit.
- Application of GCM models and satellite data.
- Use of Western Equatorial purse seine fishery and TOGA oceanographic data to study population dynamics of pelagic resources
- Turtle and monk seal links to benthic and pelagic habitats.
- Distribution of habitat for turtles with tumors.

- Studies in pelagic ecology.

4. PROPOSED ACTIVITIES/RESEARCH FOR FY 1995

- NWHI monitoring, lobster cruise and quota, and status of stocks reports for lobster, bottomfishes, and armorhead as required by WPRFMC.

- Application of TOPEX satellite data and GCM data to identify fronts and eddies around Hawaiian Archipelago (Year 2 Pelagics Program Project).

- Proposed projects depending on potential shift in Laboratory research emphasis:

  Develop quantitative lobster metapopulation model

  Model impacts of reduced minimum size for lobster.

  Conduct case study to evaluate relationships between large-scale ocean variability and western Pacific skipjack resources.

  Conduct juvenile opakapaka diet study.

  Write paper on egg size covariate for estimating size at maturity of 4 eteline snappers.

  Evaluate needs and methods for pelagic ecology studies.

  Characterize the forage habitat and foraging ecology of monk seals.

  Investigate spatial scale of bottomfish management unit with otolith microchemistry.

  Investigate turtle tumors epidemiology.

5. PROBLEMS OR IMPEDIMENTS TO MEETING GOALS

- Insufficient nonpersonnel funds.

- Insufficient staff with modern fishery assessment skills.

- Insufficient staff with modern computer skills.

- Need more powerful computer systems.

6. INTEGRATION/RELATIONSHIPS WITH OTHER RESEARCH PROGRAMS

- Insular focus on physical and biological links in NWHI complements and contributes to HL monk seal and pelagic studies.
- Insular reef fish assessment in NWHI addressed issue of monk seal prey base.
- Staff on Crustacean and Bottomfish Plan Monitoring Teams.
- Close collaboration with UH Dept. of Oceanography in physical oceanography, TOPEX, GCM, co-PI on Pelagics Project. UH faculty appointment, advisor to several graduate students.
- Senior Fellow at JIMAR, Board member, Insular Pacific Regional Marine Research Program.

DIRECTOR'S OFFICE, ADMINISTRATION, INFORMATION AND TECHNICAL SERVICES, AND LIBRARY AND SCIENTIFIC SERVICES

1. OVERVIEW

- Goals:

  Provide scientific leadership, carry out organizational responsibilities, and provide overall management of the HL.

  Administer the HL in an effective and efficient manner according to agency policies, procedures, and rules.

  Supply scientific, technical, and related support services to HL management and research staff.

- Objectives:

  Assure adequate funding and appropriate facilities for conducting HL research and operations.

  Provide administrative services for procurement, budget planning and implementation, personnel management, and facility management of the HL.

  Ensure technical support of NMFS compatible computer and communication resources for HL management and research staff.

  Provide library, scientific editorial, and illustration services for HL management and research staff.

- Staff and Budget for FY 1994

	Amount	Staff Yr
Director's Office	$ 461.4k*	2.0
Administration	$ 312.0k	5.0
Information & Technical Services	$ 248.3k**	4.8
Library & Scientific Services	$ 159.6k	4.0
TOTAL	$1,181.3k	16.8

*Includes NOAA reimbursable $232.7k (CWatch $67.0k, Ocean Color $137.1k, & carry over $28.6k) and PCS $100.0k.

**Includes NMFS IT-95 $58.0k.

- Number of NMFS Staff by Categories

FTP	15.8
FTT	1.0

NMFS Staff

M. Laurs GS-15	Director
D. Tieman GS-12	Chief ITS
F. Crusing GS-12	UNIX System administrator
W. Higuchi GS-11	LAN/Network administrator
C. Motell GS-11 (FFT)	CoastWatch manager
K. Yee GS-11	Executive officer
S. Abbott-Stout GS-9	Tech. information specialist
J. Pappas GS-9 (.8FTP)	Database administrator
J. Beasley GS-7	Editorial clerk
B. Dong GS-7	Accounting clerk
M. Higa GS-6	Secretary
R. Uyeda GS-6	Systems programmer
J. Kuromoto GS-5	Procurement clerk
G. Wong GS-5	Personnel clerk
D. Yamaguchi GS-5	Illustrator, editorial clerk
F. Fiust GS-4	Editorial clerk
L. Hammonds WG-6	Maintenance, general support

2. SIGNIFICANT ACCOMPLISHMENTS FY 1994

- Actions undertaken to improve team approach for research and operations at HL, to expand authority of Investigation Leaders for management of funds, to streamline laboratory management functions, and to implement diversity program.

- Efforts launched to enhance relations with PAO, WPRFMC and UH JIMAR/PFRP, Dean of Science, and RCUH.

- Special administrative support provided for IT-95 equipment purchases, facility preparations, and personnel hiring.

- Procedures and actions pertaining to the JIMAR/PFRP program improved and streamlined; training provided to HL staff and orientations given to JIMAR staff to clarify roles, responsibilities, organizational structures, supervisory relationships, and procurement procedures.

- CoastWatch satellite data system improved, automated, and made operational for easy electronic access of satellite ocean data products by HL investigators.

- Exceptional progress made for IT-95 conversion, including completion of site preparations and installation of hardware, software, and communications equipment, UNIX System Administrator hired, and design and conversion of PSI UNIX database initiated.

- 20% of HL PCs replaced or upgraded with IT-95 funds, full Internet and related capabilities made available to staff, communications between HL and UH upgraded to increase capacity 10-fold, and upgrades to HL LAN underway to enable use of Windows, graphical, and other modern software.

- Facility improvements completed or underway, including conversion of two antiquated laboratories to office space, remodeling area in Annex 2 for new laboratory space, reconversion of former seminar room back to seminar room, conversion of two restrooms in Annex 1 for handicap access, and renovation of Director's office complex.

- Unusually heavy volume of manuscript typing and related editorial and illustration support provided to HL staff for 100 manuscripts and reports submitted for publication, in press or published.

3. EMERGING ISSUES

- Expansion of opportunities for staff development, teamwork, and coordination.

- Dole Street facility needs for maintenance, meeting environmental compliance, and alleviating overcrowding; possible study to evaluate building remodeling or replacement.

- Kewalo Research facility improvements required for monk seal and turtle housing, maintenance and repairs, and security.

- IT-95 system needs for maintenance, database conversion, and training.

- Significant increases in complexity and responsibility for maintaining computer communications capabilities.

- Rebate from 12% overhead taxed by Center for reimbursable contracts.

4. PROPOSED ACTIVITIES/RESEARCH FOR FY 1995

- Carry on usual activities related to program and budget management, administration, and support services.
- Expand team building, EEO awareness, and staff development emphasizing diversity.
- Conduct administrative activities required for accomplishing capital improvements to upgrade electrical system and to install central air conditioning in main building.
- Implement automated systems adopted by Center for administrative services, including inventory control, time and attendance, travel, and others as appropriate.
- Establish budget category and work plan for facility maintenance and refurbishment, including possible improvements to women's restroom in main building and to editorial and illustration services work area, schedule for repainting, etc.
- Continue improvements in administrative matters, science proposal development, and related interactions with UH/JIMAR and UH/RCUH.
- Conduct activities related to IT-95 conversion, including conversion of existing data resources to ORACLE databases and tables, maintenance of system, and comprehensive training of staff on IT-95 hardware and software.
- Provide timely and wide ranging computer and communications support services to HL staff, PAO, and JIMAR staff.
- Make improvements to HL computer and communications systems, including conversion from DOS based software packages to Windows/Graphical software, replacement of thin ethernet LAN wiring with twisted pair wiring, replacement of LAN Manager servers and software, and replacement of as many as possible outdated computer systems and upgrade memory and disk space on existing systems.
- Establish budget category and spending plan for library operations.

- Operate CoastWatch system for providing satellite ocean temperature products to HL investigators and to expand operations to include satellite ocean color information when SeaWiFS satellite is launched.

5. PROBLEMS OR IMPEDIMENTS TO MEETING GOALS

- Need to fill existing vacancies for key positions.
- Shortage of ORACLE and UNIX experts.
- Shortage of funding for facility needs at Dole Street and Kewalo Research facility.
- Overcrowding and shortage of office space.
- Shortage of funding for computer, library, and scientific support services.

6. INTEGRATION/RELATIONSHIPS WITH OTHER RESEARCH PROGRAMS

- Director's office serves as the focal point for a far-reaching range of interactions with Federal, State and local agencies, academic institutions, private research foundations, the fishing industry, conservation groups, media, and the general public.
- Administration group has extensive interactions regarding administrative matters with all HL staff, SWC/La Jolla, PAO and occasionally other NMFS groups; with WASC and other NOAA offices; and various State of Hawaii and local offices, UH/JIMAR, and RCUH.
- Information and Technical Service group provides computer support to all HL, PAO, JIMAR, and WPACFIN staff at the laboratory and interacts considerably with SWC/La Jolla ITS staff, NMFS Headquarters regarding IT-95 matters, and other IT-95 sites. A close relationship is also maintained with UH Computing Center.

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